

## Exacerbation of chronic liver disease due to hepatitis B surface antigen after delta infection

SIR,—The report by Dr G Raimondo and others (12 March, p 845), in which the  $\delta$  agent was implicated as the causal factor in three cases of fatal hepatitis, together with the fulminant cases reported by Smedile *et al*<sup>1</sup> are of much concern since they show that, in Italy at least,  $\delta$  acquired by a hepatitis B carrier is severely detrimental to the patient.

We have evidence, however, that the simultaneous acquisition of  $\delta$  with hepatitis B does not cause an appreciable increase in severity in drug abusers with serologically acute hepatitis B. We have examined 212 drug abusers who developed hepatitis during a continuing outbreak of hepatitis B among drug abusers in Dublin<sup>2</sup> and five long term drug abusing carriers of hepatitis B surface antigen (HBsAg) for  $\delta$  antigenaemia, using enzyme immunoassay after detergent treatment, and for anti- $\delta$ , using enzyme immunoassay with serum as the  $\delta$  antigen source; the specificity of our test has been confirmed on a sample by Dr Rizzetto (table).

There was no significant difference in the clinical findings between those with or without S antigenaemia, and there has been one fatal case in this group so far. Six of the 212 patients have become HBsAg carriers and four of these have anti- $\delta$ ; the fatality occurred in one of these 14 months after the acute episode. Additionally, five have been carriers for several years; we have not found S antigen retrospectively in stored sera from these five, but three have anti- $\delta$ . It is not known whether these three acquired their  $\delta$  infections simultaneously with hepatitis B or subsequently.

It appears that in Ireland the acquisition of S and hepatitis B simultaneously is not usually associated with severe hepatitis, and this is similar to the experience in Sweden, where Moestrup *et al* (8 January, p 87) found only one fulminant case in 37 with acute hepatitis B and  $\delta$ . The severe  $\delta$  associated hepatitis reported from Italy seems to have occurred only in patients who were carriers of hepatitis B

### *Results of tests for presence of $\delta$ markers, $\delta$ antigen, and anti- $\delta$ in 217 drug abusers*

Drug abusers tested	No with $\delta$ markers	No with $\delta$ antigen	No with anti- $\delta$	Seropositive conversions
212 with acute hepatitis B	72 (34%)	53 (25%)	19 (9%)	14
5 HBsAg carriers	3	0	3	—

and who acquired  $\delta$  subsequently. The possibility of an ethnic (genetic) factor in  $\delta$  pathogenicity must also be considered.

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<sup>1</sup> Smedile A, Verme G, Cargnel A, *et al*. Influence of delta infection on severity of hepatitis. *Lancet* 1982; ii:945-7.

<sup>2</sup> Shattock AG, Kelly MG, Fielding JF, Arthurs Y. Epidemic hepatitis B with delta-antigenaemia among Dublin drug-abusers. *Irish J Med Sci* 1982; **151**: 334-8.